

WHAT IS CLAIMED IS:

1. An apparatus, comprising:
a projection display screen that can electrically alter the reflectivity of a region of the projection display screen in response to the intensity of incident projected light that is applied at the region.
2. The apparatus of claim 1, wherein the projection display screen level of incident projected light is above a prescribed intensity threshold value for ambient light.
3. The apparatus of claim 1, wherein there are bi-colored particles arranged substantially in a plane in the projection display screen.
4. The apparatus of claim 1, further comprising:
a variable surface reflectivity layer that changes its light reflectivity in response to a change in applied potential; and
a photoconductor layer that can apply a potential to the variable surface reflectivity layer to change its light reflectivity in response to applied incident projected light.
5. The apparatus of claim 4, in which the projection display apparatus is front projection display apparatus, and the variable surface reflectivity layer comprises electronic ink.
6. The apparatus of claim 4, in which the variable surface reflectivity layer comprises a polarizing layer and a liquid crystal layer.
7. The apparatus of claim 4, further comprising providing a filter over the photoconductor layer that filters the band of light that is applied to the photoconductor layer.

8. The apparatus of claim 4, further comprising providing a filter over the photoconductor layer that filters the polarization of light that is applied to the photoconductor layer.

9. The apparatus of claim 4, further comprising providing a filter over the variable surface reflectivity layer that filters the band of light that is applied to the variable surface reflectivity layer.

10. The apparatus of claim 4, further comprising providing a filter over the variable surface reflectivity layer that filters the polarization of light that is applied to the variable surface reflectivity layer.

11. The apparatus of claim 4, wherein the variable surface reflectivity layer comprises objects, each object having different surface regions of different reflectivities, wherein each object is rotatable to display a first reflectivity when a potential is applied, and each object is rotatable to display a second reflectivity when the potential is not applied.

12. The apparatus of claim 4, in which the variable surface reflectivity layer comprises an electrostatically de-wettable material.

13. The apparatus of claim 1, wherein a contrast of an image of a passive display is improved by using a display screen that changes its reflectivity at each location.

14. The apparatus of claim 1, further comprising a display surface, a back electrode, and a transparent conductive layer wherein the applied light includes an incident applied light that is at least partially reflected off the display surface, wherein the reflectance of the applied light off the incident projected light surface can be varied by altering a relative charge between the back electrode and the transparent conductive layer.

15. The apparatus of claim 14, wherein varying the reflectance of the applied light off the incident projected light surface acts to reduce a maximum black level of any region of an image that can be projected from the incident projected light surface.

16. The apparatus of claim 14, in which the projection display screen reacts to incident projected light to compensate for elevated black point caused by increasing the ambient light that is directed at the projection display screen.

17. The apparatus of claim 16, wherein the projection display screen is configured to reduce the light reflected from a segment of the projection display screen when the segment of the projection display screen is displaying a black level.

18. The apparatus of claim 1,
wherein the projection display screen comprises an incident projected light surface and a back surface, projection display screen comprises:
a variable surface reflectivity layer that changes reflectivity as viewed from the incident projected light surface in response to changes in a potential applied to the variable surface reflectivity layer, and
a photoconductor layer whose conductivity changes as light that is applied to the incident projected light surface extends above a prescribed threshold.

19. The apparatus of claim 18, wherein the variable surface reflectivity layer comprises a material of a first reflectivity that is suspended in a liquid of a second reflectivity, and wherein the material of the first reflectivity is displaced towards the incident projected light surface to make the first color visible through the incident projected light surface when a first electromagnetic field is applied across the region of the layer of color variable material, and further wherein a region of the material of the first reflectivity is displaced away from the incident projected light surface to make the liquid of

the second reflectivity visible through the incident projected light surface when a second electromagnetic field is applied across the region of the layer of variable surface reflectivity layer.

20. The apparatus of claim 18, wherein the variable surface reflectivity layer includes a number of objects that align in a first orientation wherein a first light reflectivity is directed toward the incident projected light surface to be visible from the incident projected light surface when a first charge is applied to a region of the incident projected light surface, and wherein a number of objects align in a second orientation wherein a second surface reflectivity is directed toward the incident projected light surface to be visible from the incident projected light surface when a second charge is applied to a region of the incident projected light surface.

21. The apparatus of claim 1, wherein the light that is applied at the location is in the form of an image.

22. The apparatus of claim 1, further comprising:

a light projection region that applies at least a region of the incident projected light on the projection display screen; and

a dedicated screen reflectivity control mechanism that can change the reflectivity of the projection display screen in response to an intensity of the incident projected light that is applied from the light projection region to the projection display screen, wherein the dedicated screen reflectivity control mechanism operates by determining the intensity of light at different regions as generated by the light projection portion.

23. The apparatus of claim 1, wherein the dedicated screen reflectivity control mechanism is electronically-based.

24. The apparatus of claim 1, wherein the dedicated screen reflectivity control mechanism is processor-based.

25. A method comprising:

varying a reflectivity of a region of a projection display screen in response to the intensity of incident projected light that is applied to the region of the projection display screen.

26. The method of claim 25, further comprising increasing a black level of the projection display screen in response to increasing the intensity of the incident projected light applied to the projection display screen.

27. The method of claim 25, further comprising applying invisible light to vary the reflectance of the region of the projection display screen.

28. The method of claim 25, further comprising:

providing a variable surface reflectivity layer that changes its surface reflectivity in response to an applied potential in response to the applying incident projected light based on the intensity of the incident projected light; and

providing a photoconductor layer that can apply a potential to the variable surface reflectivity layer.

29. A projection display apparatus, comprising:

a projection display screen that can change at least a region of its reflectivity in response to applying incident projected light that is applied at the region, wherein the projection display screen comprises;

a variable surface reflectivity layer that changes its surface reflectivity in response to a change in applied potential, and

a photoconductor layer that can apply a potential to the variable surface reflectivity layer in response to applied incident projected light.

30. The projection display apparatus of claim 29, wherein the variable surface reflectivity layer further comprises electronic ink.

31. The projection display apparatus of claim 29, wherein the variable surface reflectivity layer further comprises a layer of bi-color particles that can rotate to display different reflectivities as a result of changing an applied potential.

32. The projection display apparatus of claim 29, wherein the variable surface reflectivity layer comprises a polarizing layer and a liquid crystal layer.

33. The projection display apparatus of claim 29, wherein the variable surface reflectivity layer comprises objects, each object having different segments of different colors, wherein each object is rotatable to display a material having a first reflectivity when the potential is applied, and each object is rotatable to display a material having a second reflectivity when the potential is not applied.

34. A method comprising:

causing the areas of a projection display screen that are receiving a low intensity projected light to have a low reflectivity as compared to regions of the projection display screen that are receiving a high intensity projected light.

35. The method of claim 34, wherein the reflectivity of the projection display screen is determined by altering the distance that particles of one reflectivity are located within a fluid of a second reflectivity that faces a user.

36. The method of claim 34, wherein the reflectivity of the projection display screen is determined by altering the orientation of multi-colored particles that are directed toward a user.

37. The method of claim 34, wherein the reflectivity of the projection display screen is determined by determining how much a liquid crystal layer

rotates a polarization of light that is to be applied to a polarization layer toward a viewer.

38. The method of claim 34, wherein the reflectivity of the projection display screen is determined by whether an ink layer that light passes through on its way to a user is in its wetted state or its non-wetted state.

39. A projection display apparatus, comprising:

- a projection display screen means for changing at least a region of its reflectivity in response to applying incident projected light that is applied at the region, wherein the projection display screen means comprises;

- a variable surface reflectivity layer means for changing its surface reflectivity in response to a change in applied potential, and

- a photoconductor layer means for applying a potential to the variable surface reflectivity layer means in response to applied incident projected light.

40. The projection display apparatus of claim 39, wherein the variable surface reflectivity layer means includes means for altering the distance that particles of one reflectivity are located within a fluid of a second reflectivity that faces a user.

41. The projection display apparatus of claim 39, wherein the variable surface reflectivity layer means includes means for altering the orientation of multi-colored particles that are directed toward a user.

42. The projection display apparatus of claim 39, wherein the variable surface reflectivity layer means includes means for determining how much a liquid crystal layer rotates a polarization of light that is to be applied to a polarization layer toward a viewer.

43. The projection display apparatus of claim 39, wherein the variable surface reflectivity layer means includes means for altering an ink layer that

light passes through on its way to a user between its wetted state and its non-wetted state.